

IN THE CLAIMS

This Listing of Claims will replace all prior versions, and listings, of claims in the subject Patent Application:

Listing of Claims:

1. (Currently amended) A flip chip package structure for an image sensor, comprising:

a glass plate having a bottom face and a side edge portion extending transversely therefrom;

a semi-conductor image sense chip having a top face opposing the ~~attached to a~~ bottom face of the a glass plate, the semi-conductor image sense chip having ~~and~~ multiple electric contacts formed thereon ~~the semi-conductor image sense chip;~~ and

a conductive interconnection circuit formed on the bottom face of the glass plate, the conductive interconnection circuit having multiple first solder points each electrically connected to a corresponding one of the electric contacts of the semi-conductor image sense chip and multiple second solder points formed on one side of the glass plate, the multiple second solder points adapted to be electrically connected to a printed circuit; ~~the periphery and the bottom face of the glass plate covered with~~

~~an opaque mask, the~~ opaque mask formed about ~~having a through hole defined for allowing~~ the semi-conductor image sense chip to extending

~~through~~ peripherally outward therefrom, the opaque mask peripherally wrapping
the glass plate to cover the side edge portion thereof.

2. (Original) The flip chip package structure as claimed in claim 1,
wherein the semi-conductor image sense chip has a periphery underfilled with
jelly-like material to form an airtight condition.

3. (Original) The flip chip package structure as claimed in claim 2,
wherein the electric contacts are bumps.

4. (Original) The flip chip package structure as claimed in claim 2,
wherein the electric contacts are bonding pads and each has a metal soldering ball
planted thereon.

5. (Original) The flip chip package structure as claimed in claim 1,
wherein the multiple second solder points are arranged separately juxtaposed
relative to one another.

6. (Original) The flip chip package structure as claimed in claim 1,
wherein the multiple second solder points are arranged in an array.

7. (Currently amended) An image sense module comprising:

a glass plate having a bottom face and a side edge portion extending transversely therefrom;

a semi-conductor image sense chip having a top face opposing the
~~attached to a~~ bottom face of the a glass plate, the semi-conductor image sense chip
having and multiple electric contacts formed thereon ~~the semi-conductor image~~
~~sense chip;~~

a conductive interconnection circuit formed on the bottom face of
the glass plate, the conductive interconnection circuit having multiple first solder
points each electrically connected to a corresponding one of the electric contacts
of the semi-conductor image sense chip and multiple second solder points formed
on one side of the glass plate, the multiple second solder points adapted to be
electrically connected to a print circuit;

an opaque mask formed about the semi-conductor image sense chip
to extend peripherally outward therefrom, the opaque mask peripherally wrapping
the glass plate to cover the side edge portion thereof; and

a lens set secured on the glass plate, the lens set including a holder
perpendicularly attached to a top face of the glass plate and having a skirt
downward extending from the holder to define ; a channel at ~~defined in~~ one side

~~thereof-the skirt~~ for passage of allowing the conductive interconnection circuit extending therethrough ~~the holder~~.

8. (Currently amended) The image sense module as claimed in claim 7, wherein the electric contacts are bonding pads, and each has a metal soldering ball planted thereon, ~~and the periphery and the bottom face of the glass plate are covered with an opaque mask, the opaque mask having a through hole defined for allowing the semi-conductor image sense chip extending through the opaque mask.~~

9. (Original) The image sense module as claimed in claim 8, wherein the multiple second solder points are arranged separately juxtaposed relative to one another.

10. (Original) The image sense module as claimed in claim 8, wherein the multiple second solder points are arranged in an array.

11. (Currently amended) The image sense module as claimed in claim 7, wherein the electric contacts are bumps, ~~and the periphery and the bottom face of the glass plate are covered with an opaque mask, the opaque mask having a~~

~~through hole defined for allowing the semi-conductor image sense chip extending through the opaque mask.~~

12. (Original) The image sense module as claimed in claim 11, wherein the multiple second solder points are arranged separately juxtaposed relative to one another.

13. (Original) The image sense module as claimed in claim 11, wherein the multiple second solder points are arranged in an array.

IN THE DRAWINGS

The attached sheet of Drawing includes a change to Fig. 9. This sheet, which includes Fig. 9, replaces the original sheet including that Figure. In Fig. 9, the previously omitted reference number 411 has been added.

Attachment: Replacement Sheet

IN THE SPECIFICATION

Please replace the paragraphs at page 2, line 5 – page 3, line 3 with the following amended paragraphs:

As described above, the chip package technology trends have been toward ~~Flip~~ flip chip package structure. The process of flip chip package needs to grow multiple bumps on the wafer and each bump is electrically connected to the circuit on a PCB such that the top of each of the bumps faces the PCB and the prerequisite condition of an open sensing area of the image sensor is limited. Consequently, the flip chip has a good electric property, heat dissipation and a small packaged size, but it is difficult to use the technology of flip chip on an image sensor very well.

A conventional flip chip package structure of an image sensor in accordance with the prior art shown in Fig. 9 10 comprises a glass plate (91) including an inner face forming a circuit (910) on the inner face of the glass plate (91) by etching. A chip (92) is soldered on the circuit near a middle portion of the glass plate (91) by using first tin balls (93) and the technology of flip chip. The circuit (910) of the glass plate (91) has two opposite sides each having a second tin ball (94) for surface mounting of the circuit (910). The diameter of each of the second tin balls (94) must be greater than the thickness of the chip (92) for a good reliability. For a suitable interval between the two second tin balls (94), the area of the glass plate (91) must be enlarged. Consequently, the enlarged glass plate

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enlarges the volume of the image sensor. The type of ~~the~~ conventional flip chip package structure needs to be advantageously altered.